IN THE CLAIMS:

Amend the claims to read as indicated below.

1. (currently amended) A method of displaying an ultrasound image with adaptive persistence, comprising:

obtaining a plurality of component image frames of body tissue or fluids;

determining the extent to which at least one ~~portion~~ multiple pixel area of each component image frame varies from one image frame to another image frame by assessing the frame-to-frame misregistration of one or more component areas ~~of temporally different image frames~~due to the motion of imaged structure in the area;

combining a plurality of the component image frames to provide a composite image frame, the number and/or weighting of component image frames that are combined in at least one area of the composite image frame being a function of the ~~determined extent to which at least one portion of each component image frame varies~~imaged structure motion in the area so that lower persistence is applied in an area with significant imaged structure motion and higher persistence is applied in an area with less imaged structure motion; and

displaying an image corresponding to the composite image frame.

2. (original) The method of claim 1 wherein the act of determining the extent to which at least one portion of each component image frame varies from image frame-to-image frame comprises determining the extent to which a single portion of each component image frame varies from image frame-to-image frame.

3. (original) The method of claim 2, further comprising manually designating the single portion of each component image frame in which the determination is made of the extent to which the single portion of each component image frame varies.

4. (original) The method of claim 3 wherein the act of manually designating the single portion of each component image frame comprises designating the single portion on the displayed image.

5. (original) The method of claim 1 wherein the act of determining the extent to which at least one portion of each component image frame varies from image frame-to-image frame comprises determining the extent to which each of a plurality of portions of each component image frame varies from image frame-to-image frame.

6. (original) The method of claim 1 wherein the act of combining a plurality of the component image frames to provide a composite image frame comprises weighting the contribution that each of the component image frames makes to the composite image frame so that different component image frames contribute to the composite image frame in differing degrees.

7. (original) The method of claim 6 wherein the act of weighting the contribution that each of the component image frames makes to the composite image frame comprises weighting the contribution that each of the component image frame makes based on the lapse in time since the component image frame was obtained.

8. (original) The method of claim 6 wherein the act of weighting the contribution that each of the component image frames makes to the composite image frame comprises weighting the contribution that each of the component image frames makes based on the number of component image frames combined to provide the composite image frame.

9. (previously presented) The method of claim 1, wherein determining the extent to which at least one portion of each component image frame varies from image frame-to-image frame further comprises:

dividing each component image frame into a plurality of image areas, each of the image areas in a component image frame representing substantially the same portion of the body tissues or fluids that is represented by a corresponding image area of the other component image frames; and

determining the extent to which corresponding image areas of the plurality of component image frames vary from image frame-to-image frame;

and wherein combining a plurality of the component image frames further comprises:

combining the corresponding image areas in each of the plurality of the component image frames to provide respective composite image areas in a composite image frame, the number and/or weighting of image areas that are combined to form each of the composite image areas being a function of the determined extent to which the respective corresponding image areas vary.

10. (original) The method of claim 9 wherein the act of combining the corresponding image areas in each of the plurality of the component image frames to provide respective composite image areas comprises weighting the contribution that each image area in each component image makes to the respective composite image area so that corresponding image areas from different component image frames contribute to the respective composite image area in differing degrees.

11. (original) The method of claim 10 wherein the act of weighting the contribution that each of the image areas in each component image frame makes to the respective composite image area comprises weighting the contribution that each of the image areas in each component image frame makes based on the lapse since the component image frame was obtained.

12. (original) The method of claim 10 wherein the act of weighting the contribution that each of the image areas in each component image frame makes to the

respective composite image area comprises weighting the contribution that each of the image areas in each component image frame makes based on the number of component image areas that are combined to form the respective composite image area.

13. (currently amended) A diagnostic ultrasound imaging system with adaptive persistence, comprising:

an ultrasound scanhead having a plurality of transducer elements, a transmitter coupled to the scanhead, the scanhead being operable to apply a transmit signal to the scanhead, and a beamformer coupled to the scanhead, the beamformer being operable to receive signals corresponding to ultrasound echoes from the scanhead and generate a plurality of component image frames corresponding thereto, wherein the scanhead, the transmitter and the beamformer are operable for obtaining a plurality of component image frames of body tissue or fluids;

a persistence processor coupled to the beamformer to receive signals corresponding to each of a plurality of the component image frames, the persistence processor being operable to determine the extent to which at least one multiple pixel portion of each component image frame varies from image frame-to-image frame due to the motion of imaged structure, the persistence processor further being operable to combine a plurality of the component image frames to provide a composite image frame, the number and/or weighting of component image frames that are combined by the persistence processor in at least one area of the composite image frame being a function of the determined extent to which at least one portion of each component image frame varies so that imaged structure with significant motion is displayed with a lower persistence and imaged structure with less motion is displayed with a higher persistence;

and

a display coupled to the persistence processor for displaying an image corresponding to the composite image frame.

14. (original) The diagnostic ultrasound imaging system of claim 13 wherein the persistence processor comprises:

a pre-processor coupled to the beamformer, the pre-processor being operable to preweight the signals corresponding to each of a plurality of the component image frames;

a resampler coupled to the preprocessor, the resample being operable to process signals from the preprocessor to spatially realign the component image frames;

a combiner coupled to the resampler, the combiner being operable to combine a plurality of the component image frames to provide the composite image frame; and

a post-processor coupled to the combiner, the post-processor being operable to normalize signals corresponding to the composite image frame.

15. (original) The diagnostic ultrasound imaging system of claim 14 wherein the pre-processor is operable to preweight the signals corresponding to each of a plurality of the component image frames with a weighting factor that is a function of the number of component image frames that are combined to form the composite image frame.

16. (previously presented) The diagnostic ultrasound imaging system of claim 14 wherein the pre-processor is operable to preweight the signals corresponding to each of a plurality of the component image frames by the age of the component image frames that are combined to form the composite image frame.

17. (previously presented) The diagnostic ultrasound imaging system of claim 13 wherein the diagnostic ultrasound imaging system further comprises a user interface, and wherein the persistence processor comprises:

a digital signal processor coupled to the beamformer and to the user interface, the digital signal processor being operable to receive from the user interface a plurality of processing parameters and to process the signals corresponding to each of a plurality of the component image frames based on the processing parameters;

an image frame memory coupled to receive and store the signals corresponding to each of a plurality of the component image frames; and

an accumulator memory coupled to the digital signal processor and to the image frame memory, the accumulator memory being operable to receive from the image frame memory signals corresponding a plurality of the component image frames selected by the digital processor and to store the signals for coupling to the display.

18. (original) The diagnostic ultrasound imaging system of claim 17, wherein the digital signal processor comprises a frame misregistration system, the frame misregistration system comprising:

a history buffer receiving and storing data indicative of the extent to which at least one portion of the plurality of component image frames vary from one image frame to the next; and

a calculation and decision logic unit coupled to the history buffer to receive the data stored in the history buffer, the calculation and decision logic unit being operable to determine based on the data stored in the history buffer the number of component image frames that should be combined to generate the composite image frame.

19. (original) The diagnostic ultrasound imaging system of claim 13 wherein the persistence processor is operable to determine the extent to which at least one portion of a plurality of the component image frames vary from one image frame to another by determining the extent to which a single portion of each component image frame varies from one image frame to another image frame.

20. (original) The diagnostic ultrasound imaging system of claim 19 wherein the diagnostic ultrasound imaging system further comprises a user interface, and wherein the persistence processor is operable to determine the extent to which a single portion of the component image frames varies by manually designating the single portion with the user the user interface.

21. (original) The diagnostic ultrasound imaging system of claim 13 wherein the persistence processor is operable to determine the extent to which at least one portion of a plurality of the component image frames vary from one image frame to another by determining extent to which each of a plurality of portions of each component image frame varies from image frame to another image frame.

22. (original) The diagnostic ultrasound imaging system of claim 13 wherein the persistence processor is operable to weight the contribution that each of the component image frames makes to the composite image frame so that different component image frames contribute to the composite image frame in differing degrees.